

KALINKA, V.D., kand.med.nauk; SHUMMAN, F.V., kand.med.nauk; ZHDRAVLEV, N.N.,  
kand.med.nauk

Third Republican Conference of Latvian Pathologists. Arkh. pat.  
27 no.11:82-84 '65. (MIRA 18:12)

KALINKIN, I.

Road construction organizations should aid correspondence students.

Avtdor. 28 no.6s25 Ja '55.

(MIRA 18:8)

KA LINKEVICH, A.

Influence of nitrogen- potassium nutrition on the carbohydrate  
metabolism of KOK-SAGHYZ (CHAIR OF AGRICULTURAL CHEM. TIMIRYAZEV  
AGRICULTURAL ACADEMY) vol.4, no.4, p. 381 , 1938.

BC

B-III-1

Effect of periodic supplies of nitrogen and potassium on root yields and rubber content of *Koh-saghyz*. A. F. KALINKEVITSCH (Compt. rend. Acad. Sci. U.R.S.S., 1938, 20, 689-692).—Rubber accumulation in the plants is favoured by application of N during rooting, but after fruiting the N supply should be restricted. Max. yields are associated with max. leaf production prior to general flowering and with the subsequent maintenance of leaves in an active condition. Plants respond to K fertilizers only when the timing of the N supply is satisfactory. Under other conditions application of K may be detrimental. A. G. P.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROUP	SECTION	SUBSECTION	DETAILS	REMARKS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
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92	92	92	92	92
93	93	93	93	93
94	94	94	94	94
95	95	95	95	95
96	96	96	96	96
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98	98	98	98	98
99	99	99	99	99
100	100	100	100	100

PRECEDENTS AND PROPERTIES INDEX

The effect of mineral fertilizers on the crop of the kok-saghyz seeds. A. Kalinkevich. *Doklady Vsesoyuz. Nauch. Akad. Nauk SSSR* (Moscow) 1910, No. 2, 3, 34, 1711. High phosphate and K are required for high yields of seeds of the required quality; N should be comparatively low from the time of the germination of seeds to the beginning of the roset formation. An insufficiency of K in this period caused a rapid dying of the leaves and an excess of N retarded the formation of the root system and inhibited the formation of leaves. In both cases the yield of seeds was lowered. In roset formation (blossoming) kok-saghyz requires increased fertilization, with N predominating. The regime of N fertilization described caused an accumulation of reducing sugars in leaves during the blossoming and the ripening of seeds and an increase of the synthesizing ability in regard to proteins.

W. R. Hein

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

**E. M. W.**

**Effect of potassium and nitrogen supply on the carbohydrate metabolism of the Kalm-coara plant. A. Kalikhevitch (Mikrochimia, 1930, 4, 281-291).**—The carbohydrate contents of the leaves and roots of the plant vary with the stage of development. At the flowering season, transfer of carbohydrate from leaves to reproductive organs occurs and after the fruit has appeared, transfer to the roots occurs. Towards the end of the vegetation period, sol. carbohydrates and inulin are stored in the roots. Increase in N supply to the plant leads to increased content of reducing sugars and increased K supply to increased total sugar (especially sucrose). If there is lack of N or increase of K at the end of the vegetation period, sugar transfer from leaves to roots occurs. Increased K supply stimulates photosynthesis.

**W. McC.**

CO

15

Physiological basis of fertilization in the cultivation of kok-saghyz rubber plant. A. P. Kalinkovich, *Chemicalization Socialist Agr.* (U. S. S. R.) 8:85, 10/11, 22-9 (1960); *Chimie & Industrie* 44, 1511(1960); *J. C. A.* 34, 4208. During the first period of growth, from germination until the beginning of formation of the rosettes, high-P, relatively low-N and increased K nutrition are required. During the following stages: formation of the rosette, budding, blooming and ripening of the seeds, generally intensified nutrition, with predominance of N, should be provided. After fructification and during the winter increased P and K and reduced N fertilization should be applied. A. Papineau-Couture

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCEDURES AND PROPERTIES INDEX									
<div style="position: absolute; top: 10px; left: 10px; font-size: 2em; font-weight: bold;">BC</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em; font-weight: bold;">A-4</div> <div style="position: absolute; top: 300px; left: 300px; width: 400px; text-align: center;"> <p><b>Effect of calcium (Ca, Ba, Cu) on translocation of sugars in plants.</b>  <i>A. K. Kishorewsky (Compt. rend. Acad. Sci. U.R.S.S., 1961, 26, 281-282).</i>—Pot experiments with bean-seedlings treated with <math>\text{Ca}(\text{NO}_3)_2</math> or <math>\text{NaNO}_3</math> with and without addition of <math>\text{KCl}</math> or <math>\text{BaCl}_2</math> show that, in leaves and flowers, Ca<sup>++</sup> favors accumulation of glucose and other reducing sugars while Ba<sup>++</sup> favors that of fructose and sucrose. Fe<sup>++</sup> acts like <math>\text{Na}^+</math> but less powerfully, the total sugar content being increased. Na<sup>+</sup> probably promotes conversion of fructose into glucose and then into sucrose. Glucose is the predominant sugar in sucrose of the high sugar content of the flowers.</p> </div>									
<b>ASM-31A METALLURGICAL LITERATURE CLASSIFICATION</b>									
<b>1960-1961</b>									



CA

110

The role of calcium, potassium, and sodium in the production of rubber in kok-saghyz roots. A. F. Kalinkevich. Doklady Akad. Nauk S.S.S.R. 58, 89-91(1947); Chron. Zentr. 1948, 11, 1233; cf. C.A. 33, 3952; 42, 8849. Growth tests were made on kok-saghyz plants in 1938, 1941, and 1946, in which the Ca, K, and Na contents of the Wellriegel nutrient soln. were modified. A 60% increase in the Ca content increased the rubber content of the roots to 6.6%. A like increase in the K and in the Na of the nutrient soln. increased the rubber in the roots to 4.8 and 5.4%, resp. Removal of buds from the plants increased these values by about 40% more. M. G. Moore

All-Union Sci. Res. Inst. Fertilizers, Agrotechnology + Agricultural Soil Science  
im. Gedyrovs.

1951

CA

Sugar in plants receiving nitrate and ammonia fertilizer.  
A. E. Kalukaych. *Doklady Akad. Nauk S.S.S.R.* 50, 237 (1947); *Chem. Zvest.* 1948, 1, 770; cf. C.I. 42, 8884. --A study was made to det. what types of sugars are oxidized by nitrates, which are thereby reduced to  $\text{NH}_4$ . Kok-saghyz was used for the expts. since it contains glucosans and large amts. of fructosans. The seeds were sown in pots of sand contg. Hellriegel's nutrient mix. They were fertilized with (1)  $\text{NaNO}_3$ , (2)  $\text{NaNO}_2$ , and (3)  $(\text{NH}_4)_2\text{CO}_3$ . Analyses made after several weeks showed considerably more sol. glucose in those plants receiving nitrate and nitrite fertilizer than in those receiving  $(\text{NH}_4)_2\text{CO}_3$ . Nitrate oxidized the glucose more vigorously than nitrite. This was evident from detns. of the glucosan and fructosan contents, as less of these compds. were found in the plants receiving nitrate. The leaves of young plants receiving  $\text{NH}_4$  contained more sugar than those of plants receiving nitrate. The reverse was true of the roots of the young plants. The conditions were reversed in the roots and leaves of old plants. M. G. M.

11 D

CA

Response of varieties of kok-saghyz to nutrients.  
I. G. Dikuser and A. F. Kalinkovich, *Doklady Akad. Nauk S.S.S.R.* 60, 631-3 (1948); cf. *C.A.* 37, 3126.  
Two varieties of kok-saghyz: Bulgakov 486 diploid and Navashin tetraploid were grown from seed on nutrient media with various concns. of N, K and P; after 20 days from planting, addnl. amts. of nutrients were added to give 160% of nutrients specified by Gelriegel mixt. Each vessel with 10 kg. of sand was planted with 3 specimens. The productivity of both varieties changed with changes in the nutrient. Bulgakov was most productive with high K; Navashin with high P. Typical results are: Bulgakov—control (1/4 N,P,K), 22.6 g. rubber; addnl. 1 1/4 P, 27.14 g. rubber; addnl. 1 1/4 K, 40.22 g. rubber; addnl. 1 1/4 P and K, 48.03 g. rubber; addnl. 1 1/4 N,P,K, 35.8 g. rubber; Navashin—16.5, 30.65, 12.96, 30.55, 24.5 g. rubber, resp. Also, an increased level of protein synthesis was noted in Bulgakov with high P diet and in Navashin with high K diet; similar effect was also observed in the level of sucrose formation. G. M. Kosolapoff

Acc. Union Sci. Res. Inst. of Fertilizers, Agrotech and Agr. Soil Study, m. I. K. Redonov, 1948.

ASAC 514 METALLURGICAL LITERATURE CLASSIFICATION

KALINKEVICH, A. F.

USSR/Biology, Agricultural - Crop Improve- Nov 51  
ment

"Two Crops per Year," A. F. Kalinkevich, Cand  
Agric Sci

"Nauka i Zhizn'" Vol XVIII, No 11, pp 22-24

Describes methods used up to the latitude of  
Moscow for obtaining 2 crops of cabbage, pota-  
toes, cereals, etc. per year from the same field  
after only one planting. A crop very well suited  
for this technique of planting is millet. In  
the case of bread cereals, overfertilization with  
nitrogen is undesirable, particularly during the  
1st stage of growth.

213T11

CA

11 D

Effect of nitrate or ammonium diet on formation of latex channels and biosynthesis of rubber in roots of *Hevea brasiliensis*.  
A. P. Kalinkevich. *Doklady Akad. Nauk S.S.S.R.* 78, 1187-1191 (1961). General plant growth is better with nitrate diet, than with the  $\text{NH}_4$  diet. However, deposition of rubber is better with  $\text{NH}_4$  diet. During rubber accumulation with nitrate diet there take place: extra utilization of glucose for reduction of nitrates; retardation of transformation of active forms of sugars into rubber precursors; expenditure of sugars for synthesis of proteins; and decline of rubber synthesis. The nitrate-fed plants are physiologically younger than the  $\text{NH}_4$ -fed plants. Thus, during formation of latex channels the best diet is nitrate, but during rubber deposition,  $\text{NH}_4$  diet is indicated. G. M. K.

*Rub. Abn*  
*Vol. 20, No. 2*

*Planting*

422. Conditions of utilization of oxidized and reduced nitrogenous fertilizers in the process of rubber biosynthesis in the roots of latex saplings. A. F. KALINKEVICH. *Doklady Akad. Nauk S.S.S.R.*, 1961, 79, 1013; *Chem. Abs.*, 1961, 45, 10458. Ammonium sulphate treatment gives a faster plant development than sodium nitrate treatment, but leads to faster maturity and ageing. The yield of rubber is better with ammonium feeding. A low nitrate supply or an increased ammonium supply during the last two months before crop collection gives the best rubber production.

*all Union Sci. Res. Inst Fertilizers, Agr. Tech. + Agr. Soil Sci. in Odessa*

1952

1. KALINKEVICH, A. F.
2. USSR (600)
4. Fertilizers and Manures
7. Using magnesium fertilizers on legume and grass crops. Sov. agron. 10 no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress. ~~February~~ 1953. Unclassified.

KALINKOVICH, A.

USSR

Form of nitrogen fertilizers in the "extra-rect" nutrition of plants. A. F. Kalinkovich (Zemledel'stvo, 1964, No. 6, 45-49). In pot cultures of maize and buckwheat urea applied to the leaves produced better results than did  $\text{NH}_4\text{NO}_3$  or  $(\text{NH}_4)_2\text{SO}_4$ . If urea suspension to 1. Aq. urea (0.57%) did not damage the leaves. Source & Text: A. G. [?]



[illegible]

KALINKEVICH, A. F.

USSR/Agricultural Chemistry

Card 1/1

Author : Kalinkevich, A. F.

Title : Characteristics of feeding early ripening and late types of winter wheats

Periodical : Dokl. AN SSSR, 96, Ed. 2, 351 - 353, May 1954

Abstract : Study of carbohydrate and nitrogen exchange in early and late winter wheats showed that the sugar and nitrogen substances in the leaves and stalks of the late wheat are slowly transferred into the ear of the wheat. This leads to a poorer quality of the grain as compared with the grain of early wheat in which the transfer of feeding substances into the ear is much faster. The investigation also showed that the early wheat requires a relative increase of nitro-phosphate and the late wheat needs an increase of phosphate-potassium feeding. Eleven references. Tables.

Institution : All-Union Scientific Research Institute of Fertilizers, Agrotechnique and Soil Science.

Presented by : Academician A. L. Kursanov, March 11, 1954

KALINKOVICH, A. F.

KALINKOVICH, A. F. -- "Double-Petaled Park Roses of the North and Methods of Vegetative Reproduction of Them." Leningrad Order of Lenin Forestry Engineering Academy imeni S. M. Kirov. Leningrad, 1955.  
(Dissertation for the Degree of Candidate in Agricultural Sciences)

SO: Knizhnaya Letopis', No 1, 1956

KALINKEVICH, A.F.; ALEKSANDROVSKAYA, V.A.

Physiological basis for the placement of fertilizers in potato hills  
[with English summary in insert]. Fiziol. rast. 3 no.3:263-271 My-Je  
'56. (MIRA 9:9)

1. Vsesoyuznyy institut udebreniy, agrotekhniki i agrepechvedeniya  
(VIUAA) Moskva.  
(Potatoes) (Fertilizers and manures)

**"APPROVED FOR RELEASE: 08/10/2001**

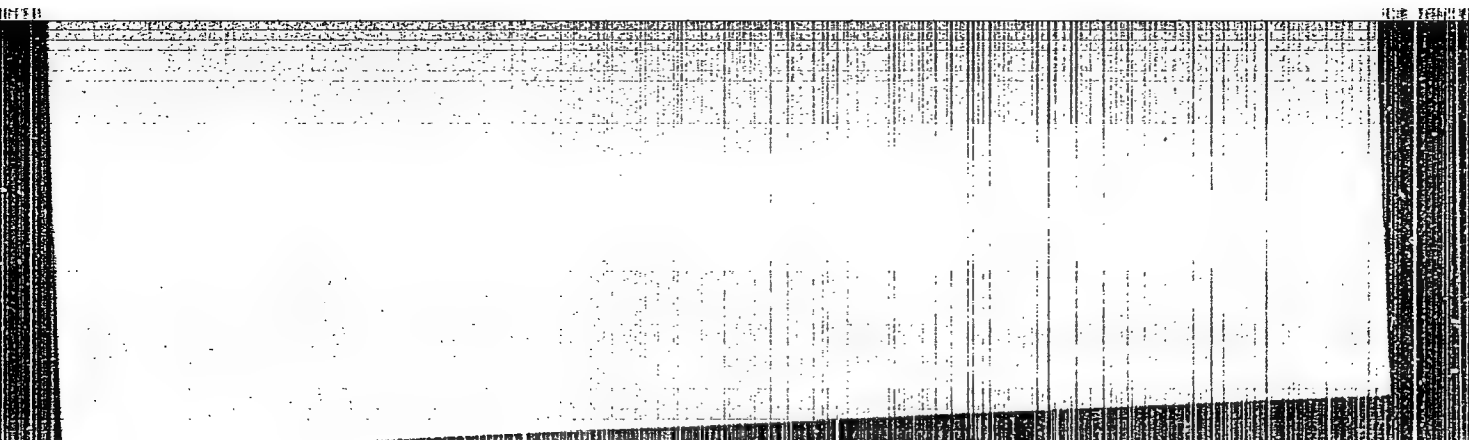
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**APPROVED FOR RELEASE: 08/10/2001**

**CIA-RDP86-00513R000620110016-4"**

USSR/Cultivated Plants. Fodder Plants.

M

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68210

Author : Kalinkovich, A. F., Novozhilova, M. G.  
Inst : All-Union Scientific Research Institute of  
Fertilizers and Agricultural Soil Science.  
Title : The Role of Nutrition for the Ripening of  
Clover Heads.

Orig Pub : Byul. nauchno tekhn. inform. Vses. n.-i. in-t  
udob. i agropochvoved., 1957, No 3, 25-27

Abstract : Pot experiments in a nutrition laboratory  
have demonstrated that when the phosphorous  
and potassium nutrition of clover under an  
oat cover is improved and it is fertilized  
in its fruit bearing year with nitrogen, it  
is possible to shorten the flowering time and  
to accelerate ripening of clover heads. -- V.  
Kopozhinskiy

Card : 1/1

The Influence of Synthetic Urea on the Formation of  
Sulphhydryl Groups in Plants by Means of Their Foliaceous  
Nutrition

20-4-51/52

special place amongst them. They form a component part of several amino acids (cystein, glutation, methionine) and are of great importance for reversible changes of protein-substances of most of the ferments, viz. they determine the activity of the latter. Starting from these assumptions, the author carried out tests with various forms of nitrogenous manure. Salad served as test-object. One month after sowing, the plants were sprayed with a solution (100 ml) which contained 50 mg nitrogen. The determination of the sulphhydryl groups was carried out according to a methodology modified by S. P. Prokoshev (reference 10). The results are summarized in table 1. The lowering of the air temperature was accompanied by a lowering of the activity of the sulphhydryl groups (variant 1). A certain increase in content of these groups was caused by calcium nitrate. Ammonia was much more efficient in this respect. Ammonium sulphate was inferior to ammonia and was equal to the calcium nitrate with respect to its effect. The sprinkling of the plants with the solution of the synthetic urea caused with both test-variants a rapid increase of the sulphhydryl groups with respect to

Card 2/3



20-4-51/52

The Influence of Synthetic Urea on the Formation of Sulphhydryl  
Groups in Plants by Means of Their Foliaceous Nutrition

their quantity and it was at the top of all tested fertilizers.  
There are 1 table and 10 references, 9 of which are Slavic.

ASSOCIATION: All-Union Scientific Research Institute of Fertilizers, Agricultural  
Engineering and Soil Science.

(Vsesoyuznyy nauchno-issledovatel'skiy institut  
udobreniy, agrotekhniki i agropochvovedeniya).

PRESENTED: June 28, 1957, by A. L. Kursanov, Academician

SUBMITTED: January 7, 1957

AVAILABLE: Library of Congress

*See also: Ref. Zhur. Biol. No. 1959 No 10587  
Academy of Sciences USSR.*

Card 3/3

Country : USSR  
 Category : Soil Science. Mineral Fertilizers.  
 Abs. Jour. :  
 Author : Kalinkevich, A.F.  
 Institut. :  
 Title : agrochemical evaluation of ammoniated superphosphate

53A07

Orig. Pub. : Udobreniye i urozhay, 1957, No. 7, 26-33

Abstract : The results are reported of field tests made by various experimental institutions of the USSR to ascertain the effectiveness of ammoniated superphosphate in relation to the N feeding level, to soil conditions, to the crops being cultivated, and also to the methods of application. The effect of a small amount of N placed into the superphosphate may be seen only in podzolic soils lacking in N. The effectiveness can be increased by means of the local application of N. The fodder

Card: 1/3

Country :  
Category :

J

53407

Ass. Jour. :

Author :  
Institut. :  
Title :

Orig. Pub. :

Abstract : P<sub>0</sub>. Spring wheat with ammoniated P<sub>0</sub> placed into the rows produced twice (4.3 centners) as large a crop as ordinary P<sub>0</sub> (2.0 centners). The nitrogen fertilizer dosage must not exceed 10 kg/ha. when applied into the rows for grain crops, and it should not exceed 2-3 kg/ha. for corn.--  
A.M. Shchepetil'nikova

Card: 3/3

17(4),30(1)  
AUTHORS:

Kalinkevich, A. F., Udovenko, G. V.

SOV/20-126-3-63/69

TITLE:

On the Problem of Influence of Nutrition Conditions on the  
Content of Amino Acids in Plants (K voprosu o vliyaniy usloviy  
pitaniya na sodержaniye aminokislot v rasteniyakh)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 3, pp 684-687  
(USSR)

ABSTRACT:

The nitrogen flowing from the soil into the root system is very quickly synthesized to amino acids. Alanine is at first produced, then dicarboxylic acids (Ref 2). Only afterwards, in the course of transamination, other, more complicated, amino acids are produced. Under normal conditions, not mineral nitrogen but nitrogen in the form of amino acids (Refs 1, 2) flows into the organs above ground (stem, leaves). Proteins are synthesized in the leaves from these amino acids. The degree of supply to plants with elements of mineral nutrition affects the formation of individual amino acids. Thus, a lack of phosphorus reduces the content of free amino acids in the plant (Ref 3), a lack of potash increases it (Refs 4, 6). Also chlorine increases this content (Refs 7, 8). On the other hand, the investigation of the leaves (Refs 4, 6) cannot characterize with sufficient accuracy

Card 1/4

On the Problem of Influence of Nutrition Conditions  
on the Content of Amino Acids in Plants

SOV/20-126-3-63/69

the change of the original synthesis of amino acids. For, on one hand, intense transamination and desamination processes occur in the leaves, on the other hand - the inclusion processes of the amino acids into the protein molecule. As the investigation of the emergent sap of hemp (the plant chosen for the test) was not possible because of its small quantity, the lower parts of the stem were investigated which also "reflect" the content of free amino acids in the roots (Ref 1). In the case of corn, the 2 lower internodes were used. Cystine, ornithine, lysine, histidine, asparagine, arginine, asparaginic and glutamic acids, serine, glycine, alanine, proline, tyrosine, tryptophane, valine, phenyl alanine, leucine, norleucine, and another not identified amino acid were detected in a free state in the hemp stems. There was not a trace of glutamine. Asparaginic acid, valine, phenyl alanine and asparaginic amide predominate quantitatively. Chlorine increases somewhat the total content of free amino acids in the hemp stems; in individual acids of the lysine, aspartic acid and tyrosine. At an intensification of potash nutrition, the content of free acids increases even more (Table 1, Variants Nos 3 and 4).

Card 2/4

On the Problem of Influence of Nutrition Conditions  
on the Content of Amino Acids in Plants

SOV/20-126-3-63/69

On account of the changes, the authors think that the free amino acids flowing from the roots into the leaves are quickly involved in the further synthesis and in the protein molecule. Besides, the increase in individual acids by sulphur with an ammonia- and nitrate- as well as sulphate-nutrition (Table 1, Variants Nrs 2, 5, and 1, 2, 5 respectively) is discussed. Also glutamine, threonine,  $\alpha$ - and  $\beta$ -alanine as well as  $\gamma$ -amino-butyric acid were observed in a free state in the corn stems. Ornithine, histidine, tryptophane, phenyl alanine, and proline were missing. The content of free amino acids is much changed in the 2nd half of the vegetation period in dependence on potash nutrition both in hemp and in corn. In case of potash hunger, the content of all acids decreases very much so that some of them cannot be detected at all (Table 2). With the

Card 3/4

On the Problem of Influence of Nutrition Conditions  
on the Content of Amino Acids in Plants

SOV/20-126-3-63/69

aging of plants, the content of free amino acids in the stems  
decreases considerably. There are 2 tables and 8 references,  
5 of which are Soviet.

ASSOCIATION: Vsesoyuznyy institut udobreniy i agropochvovedeniya  
(All-union Institute of Fertilizers and Agricultural Soil  
Science)

PRESENTED: February 25, 1959, by A. L. Kursanov, Academician

SUBMITTED: October 21, 1958

Card 4/4

KALINKEVICH, A.F.

Transformation of urea in soil. Pochvovedenie no. 4:114-117 Ap '61.  
(MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut udobreniy i  
agrpochvovedeniya.  
(Urea)



KALINKEVICH, A.F.; MOCHALOVA, A.D.

Effect of mineral nutrition on the uptake of free amino acids by  
potato stems. Fiziol.rast. 8 no.5:582-586 '61. (MIRA 14:10)

1. All-Union Scientific Research Institute of Fertilizers and  
Agronomical Soil Sciences, Moscow.  
(Plants--Assimilation) (Amino acids)

120-3-21/40

AUTHORS: Kalinkevich, I.F. and Mamyrin, B.A.

TITLE: A Generator of Delayed Pulses with Automatic Change of the Delay Time (Generator zaderzhannykh impul'sov s avtomaticheskimi izmenyayemym vremenem zaderzhki)

PERIODICAL: Pribury i Tekhnika Eksperimenta, 1957, Nr 3, pp.75-80 (USSR)

ABSTRACT: The generator gives two output voltage pulses. The first is a periodically repeating pulse of 0.1  $\mu$ sec. duration and 20 V amplitude; the repetition frequency is 20-40 kc/s (or any frequency below 60 kc/s when externally synchronized). The second pulse is the same as the first but is delayed on the first by a time which can be automatically changed, the change occurring over a period variable from 0.02 sec. to 5 min. After two examples of the application of such a generator, the block diagram (Fig.3) is described. Driving pulses are produced by the blocking oscillator 1, the output transformer of which has two output windings. From these windings 2  $\mu$ sec. duration pulses are passed to the input of the delay line 2 (first channel) and to the input of the phantatron 5 (second channel). The pulses are delayed in the delay line by 8  $\mu$ sec. and after shaping and

Card 1/3

120-3-21/40

# A Generator of Delayed Pulses with Automatic Change of the Delay Time.

amplification in the amplifier, 3, trigger the blocking oscillator, 4. Pulses of 0.1  $\mu$ sec duration and up to 200 v amplitude are taken from the output winding of the blocking oscillator. The pulses from the second winding of the driving oscillator, 1, trigger the phantatron, 5, which generates rectangular pulses, the duration of which is controlled by an external voltage. After differentiation, shaping and amplification (stages 6, 7 and 8) pulses are obtained which are delayed by a time equal to the duration of the phantatron pulse. Thus, the delay is determined by the controlling voltage taken from the points a or b through the switch, 9. Position a permits hand-control of the delay within the limits 0-35  $\mu$ sec. When the switch is in position b the controlling voltage is obtained from a sawtooth generator, 11, and thus the delay time varies according to the law of the sawtooth output voltage (linear or exponential with a repetition period variable from 0.2 sec to 5 min). The output pulses from the second channel are taken from the blocking oscillator 3, the parameters of which are the same as for 4. The sawtooth generator circuit (Fig.4) is then described, followed by a detailed des-

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12C-3-01/40

A Generator of Delayed Pulses with Automatic Change of the Delay Time.

cription of the complete circuit (Fig.5). V. A. Zagulin participated in this work. There are 7 figures and 3 Russian references.

ASSOCIATION: Physico-Technical Institute, Academy of Sciences, USSR.  
(Fiziko-tekhnicheskii institut AN SSSR)

SUBMITTED: May 10, 1956.

AVAILABLE: Library of Congress.

Card 3/3 1. Pulse generators-Operation 2. Delay line-Circuits

87462

S/057/60/030/012/009/011  
B019/B056

24.2/20

AUTHORS: Afrosimov, V. V., Gladkovskiy, I. P., Gordeyev, Yu. S.,  
Kalinkevich, I. F., and Fedorenko, N. V.

TITLE: Investigation of Atomic Flux Emitted by Plasma

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 12,  
pp. 1456 - 1468

TEXT: The authors developed a method of measuring the flux of uncharged atoms having an energy of 300 ev to some thousand kev. The method is based upon the recording of individual atoms after their ionization and acceleration to 10-20 kev. Fig.1 shows a scheme of this instrument, in which the ionized particles are directed onto an Al-Mg target, where they produced secondary ions which were measured by a scintillation counter. For the calibration of the installation, a special device for monochromatic ions and atoms was used. The calibration curves are shown and discussed in detail. Further, installations are described in detail, which permit the time dependence of the atom flux, the energy distribution, and the mass analysis of the atoms to be determined by an

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Investigation of Atomic Flux Emitted by  
Plasma

S/057/60/030/012/009/011  
B019/B056

oscilloscope. The energy distribution of the atoms was studied with the relation  $dJ/dE = J_+(E)/\bar{\alpha}_0(E)\mu E$ , where  $J_+(E)$  is the current of secondary ions, and  $\bar{\alpha}_0(E)$  the mean recording efficiency. The density of the atomic flux was determined from the relation

$$dJ/d\Omega = (1/\bar{S}_{eff}) \int_{E_1}^{E_2} J_+(E) dE / \bar{\alpha}_0(E) \mu E, \text{ where } \Omega \text{ is the mean solid angle,}$$

and  $S_{eff}$  the effective plasma surface. For calculating the concentration of atoms per unit volume the formula

$$n_0 = 2\sqrt{2M} \int_{E_1}^{E_2} (dJ/dE) dE / \sqrt{E} \text{ was used. By changing } \Omega, \text{ the light intensity } \mu,$$

and the thickness of the gas target, it is possible to improve the sensitivity considerably. The least measured density of the flux of hydrogen atoms having an energy of 300 ev in the case of an isotropic

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S/057/60/030/012/009/011  
B019/B056

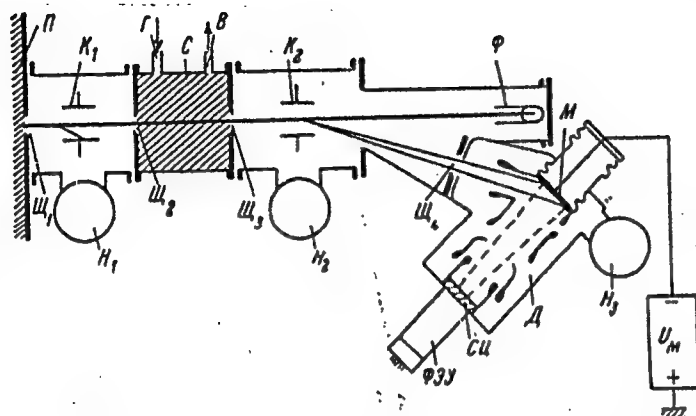


Fig.

Рис. 1. Схема прибора для исследования потока атомов.

M target.  $U_M$  source of acceleration voltage. CU scintillator.  
ФЭУ photomultiplier.  $H_1$ ,  $H_2$ , and  $H_3$  diffusion pumps. ФАР Faraday auxiliary receiver.  
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Legend to Fig.1:

Π plasma space.  $\omega_1$  entrance slit of the instrument.  $K_1$  capacitor for the deflection of charged particles. C ionization chamber.  $\omega_2$  and  $\omega_3$  entrance and exit slits of the ionization chamber. Γ and B tubes for the lead-in of a gas and pressure measurement.  $K_2$  analyzer.  $\omega_4$  detector entrance slit. Δ detector.

87L62

Investigation of Atomic Flux Emitted by  
Plasma

S/057/60/030/012/009/011  
B019/B056

velocity distribution was  $1 \cdot 10^{10}$  at/cm<sup>2</sup>.sec. There are 10 figures and  
5 references: 4 Soviet and 1 US.

ASSOCIATION: Fiziko-tekhnicheskii institut AN SSSR Leningrad  
(Institute of Physics and Technology AS USSR, Leningrad)

SUBMITTED: July 15, 1960

Card 3/4



97463

2

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S/057/60/030/012/010/011  
B019/B056

AUTHORS: Afrosimov, V. V., Gladkovskiy, I. P., Gordeyev, Yu. S.,  
Kalinkevich, I. F., Petrov, M. P., and Fedorenko, N. V.

TITLE: Investigation of a Flux of Neutral Atomic Particles  
Emitted by the Plasma of "Al'fa" Research Installation

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 12,  
pp. 1469 - 1484

TEXT: The authors used the device described in the present issue on  
p. 1456 ff. to investigate the atomic flux with energies of 300 ev to  
10 kev, emitted by the plasma of "Al'fa". The measurements showed that  
practically all atoms recorded are hydrogen atoms. The quantity of the  
fast atoms grows with an increase of the capacitor voltage, with a de-  
crease of the external magnetic field  $H_z$ , or with a decrease of the  
hydrogen pressure in the chamber. In the course of discharge, the quan-  
tity of fast atoms reaches a maximum, while the discharge current in-  
creases to its first maximum. However, there is no considerable

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Investigation of a Flux of Neutral Atomic Particles S/057/60/030/012/010/011  
 Emitted by the Plasma of "Al'fa" Research B019/B056  
 Installation

difference in the energy distribution of atoms during discharge. A table gives data on the atomic flux. Analysis of the data showed that the fraction of atoms in the atomic flux generated by reflection of ions from the wall, is small compared to the fraction coming direct from the plasma. It was further shown that the energy distribution of atoms and ions in the plasma space are very similar, and that the energy distribution cannot be approximated by Maxwell distribution. The mean energy of hydrogen atoms reflected from a metal surface is estimated in an appendix. The authors thank B. P. Konstantinov for his valuable advice and discussion, D. M. Kaminker for his interest, O. V. Konstantinov and V. I. Perel' for taking part in discussions, as well as Ye. G. Komar, A. M. Stolov, and V. A. Glukhikh for their assistance in measurements. There are 11 figures, 1 table, and 8 references: 6 Soviet and 2 US.

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87463

Investigation of a Flux of Neutral Atomic  
Particles Emitted by the Plasma of "Al'fa"  
Research Installation

S/057/60/030/012/010/011  
B019/B056

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Institute of  
Physics and Technology of the AS USSR). Nauchno-  
issledovatel'skiy institut elektrofizicheskoy apparatury  
(Scientific Research Institute of Electrophysical  
Apparatus)

SUBMITTED: July 15, 1960

15

20

25

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87463

S/057/60/030/012/010/011  
B019/B056

1 Режим	Плотность атома			3 E, эв	4 v, км/час.
	а атомов на единицу угла $\frac{dN}{d\Omega}$	б при изотропном распределении скоростей атомов $\frac{1}{v}$ см <sup>3</sup> · разр.	в энергия, уносимая атомом, $\frac{1}{2}mv^2$ эв/см <sup>3</sup> · разр.		
5 кв, 360 вст.	$1.9 \cdot 10^{-13}$	$1.2 \cdot 10^{14}$	$1.0 \cdot 10^{-2}$	480	3.0
10 кв, 360 вст.	$8.6 \cdot 10^{-13}$	$5.4 \cdot 10^{14}$	$4.5 \cdot 10^{-2}$	530	13.5
10 кв, 720 вст.	$5.3 \cdot 10^{-13}$	$3.3 \cdot 10^{14}$	$2.5 \cdot 10^{-2}$	480	7.5
15 кв, 180 вст.	$5.0 \cdot 10^{-13}$	$3.1 \cdot 10^{14}$	$3.1 \cdot 10^{-2}$	670	9.4
15 кв, 360 вст.	$3.5 \cdot 10^{-13}$	$2.2 \cdot 10^{14}$	$2.3 \cdot 10^{-2}$	630	7.0
15 кв, 720 вст.	$4.4 \cdot 10^{-13}$	$2.8 \cdot 10^{14}$	$2.4 \cdot 10^{-2}$	530	7.2

Legend to Table 1: 1) Experimental conditions, voltage at the discharge capacitors in kv, magnetic field in oe. 2a) Atoms per unit of solid angle. 2b) Density of atomic flux in isotropic velocity distribution. 2c) Energy of atoms in joules/cm<sup>2</sup>.

Card 4/4

S/120/62/000/001/022/061  
E140/E463

AUTHORS: Mamyurin, B.A., Anufriyev, G.S., Kalinkevich, I.F.  
TITLE: High-repetition-rate millimicrosecond pulse generator

PERIODICAL: Pribery i tekhnika eksperimenta, no.1, 1962, 99-101

TEXT: A straightforward pulse generator based on amplification of sine waves, clipping and differentiation, using vacuum tube techniques, is described. The input frequency may be varied between 10 kcs and 2 Mcs, output pulse amplitude up to 200 V (output impedance not mentioned), pulse width 5 ns at half-amplitude points. There are 3 figures and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR  
(Physicotechnical Institute AS USSR)

SUBMITTED: June 2, 1961

Card 1/1

ACCESSION NR: AP4018380

S/0120/64/000/001/0143/0146

AUTHOR: Afrosimov, V. V.; Kalinkevich, I. F.; Serenkov, I. T.

TITLE: Automatic stabilization of a beam of fast atomic particles

SOURCE: Pribery\* i tekhnika eksperimenta, no. 1, 1964, 143-146

TOPIC TAGS: elementary particle, fast elementary particle, atom, atomic particle, particle intensity stabilization, particle direction stabilization

ABSTRACT: A stabilization method involving direct control of the beam position in a measuring outfit is proposed. The principle is illustrated in Fig 1 (see Enclosure 1) where the typical effect of the accelerating voltage on the beam current can be seen. A modulating sawtooth voltage, whose amplitude is small in comparison with the half-width  $\Delta U$  of the line, is added to the d-c accelerating voltage. Modulating-frequency pulses appear in the circuit which records the beam current; the amplitude and polarity of these pulses will depend on the value

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ACCESSION NR: AP4018380

of the accelerating voltage which makes the detection of variations in the accelerating voltage possible. The latter is controlled by the d-c component of the pulses. This type of stabilization is independent of the spectrometer resolution. A functional diagram (see Fig 2, Enclosure 1) and principal schematics of the sawtooth-voltage generator and balanced detector are presented. It is claimed that the beam can be easily stabilized up to  $10^{-10}$  amp intensity and that the functioning time is 0.01 sec. "The authors are deeply grateful to N. V. Fedorenko for his valuable advice in discussing the results of this project." Orig. art. has: 5 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute, AN SSSR)

SUBMITTED: 04Sep62

DATE ACQ: 18Mar64

ENCL: 01

SUB CODE: 'NS

NO REF SOV: 003

OTHER: 000

Card 2/32

SOURCE: Pribery\* i tekhnika eksperimenta, no. 4, 1964, 130-131

TOPIC TAGS: electron delay device, rf delay cable 25

ABSTRACT: The development of an instrument which permits delaying statistically time-distributed pulses for a duration exceeding the average interval between two adjacent pulses is reported. The instrument is intended for atomic collision investigations and similar work. The r-f delay-cable principle (J. Blewett, et al., Proc. IRE, 1947 35, no. 12, 1580) was modified, for this 0-10-microsec in 0.1-microsec step application, by substituting



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L 20247-65  
ACCESSION NR: AP4044683

stable within 0.03%. The minimum time-interval between pulses is 1 msec.  
The maximum input load is  $1 \times 10^{-6}$  pulse/sec. The instrument is

ASSOCIATION: Fiziko-tekhnicheskiy Institut AN SSSR (Physicotechnical  
Institute, AN SSSR)

SUBMITTED: 18Jul63

ENCL: 00

SUB CODE: EC

NO REF SOV: 002

OTHER: 001

Card 2/2

CA KALINKEVICH, M.

110

The role of phosphoric acid in the accumulation of essential oils in the leaves of *Ocimum canum*. M. I. Kalinkevich (K. A. Timiriarev Acad. of Agr., Moscow). *Comp. Rend. Acad. Sci. U.R.S.S.* 53, 541-3(1946)(in English). The effect of  $H_2PO_4$  on the accumulation of essential oils, sugars, and N compounds in the leaves of *Ocimum canum* varies with the N supply. As the latter increases P increases the amt. of essential oils while a decrease of P decreases the yield and quality of leaves. As the N supply decreases increasing the P decreases the yield of leaves and the percentage of oil in them while decreasing the P has the opposite effect. There is a pos. correlation between reducing sugars and essential oils. Vacuum infiltration for 24 hrs. of a soln. of  $KH_2PO_4$  into the leaves at the period of blooming increased the proportion of the essential oils and of reducing sugars. J. P. Danchev

ASB SLA DETAILING LITERATURE CLASSIFICATION

KALINKEVICH, M. I.

PA 78T16

USSR/Chemistry - Oils, Essential  
Medicine - Plant Physiology

Jun 1948

"The Effect of Potassium on the Storage of Essential Oils in the Leaves of the Camphor Basil (*Ocimum canum* Sims.)," M. I. Kalinkevich, Moscow Agr Acad imeni K. A. Timiryazev, 2½ pp

"Dok Ak Nauk SSSR" Vol IX, No 8

Conducted experiments to show that decrease of the amount of essential oils in the leaves of subject plant can lead to an increased potassium requirement by the plant, when subjected to large potassium supply. Submitted by Acad N. A. Maksimov 7 Apr 1948.

78T16

KALINKEVICH, M.I.

Effect of forms of nitrogenous feeding on process of plant respiration.  
Doklady Akad. Nauk S.S.S.R. 88, 349-51 '53. (MLRA 6:1)  
(CA 47 no.13:6589 '53)

GUNAR, I.I., prof.; KALINKEVICH, M.I., kand.biolog.nauk

Using chemicals for regulating the flowering and fruiting of  
apple trees. Izv. TSKhA no.1:22-41 '61. (MIRA 14:3)  
(Apple) (Cresol) (Phenols)

KRUGER, M.Ya., inzh.; PANOV, V.A., kand. tekhn. nauk; KULAGIN, V.V.,  
kand. tekhn. nauk; POGAREV, G.V., kand. tekhn. nauk; KRUGER,  
Ya.M., inzh.; LEVINSON, A.M., inzh.; Primal uchastiye  
KALINKEVICH, V.N., inzh.; KAZANSKIY, A.V., kand. tekhn. nauk,  
~~retsensent~~; DMITRIYEV, A.A., inzh.; SIMONOVSKIY, N.Z., red.  
izd-va; MITARCHUK, G.A., red.izd-va; SHCHETININA, L.V., tekhn.  
red.

[Handbook for the designer of optical instruments] Spravochnik konstruktora optiko-mekhanicheskikh priborov. [by] M.IA.  
Kruger i dr. Moskva, Mashgiz, 1963. 803 p. (MIRA 16:12)  
(Optical instruments)

KALINKIN, A.

Shortcomings in the practice of issuing short-term credits to subsidiary organizations. Fin. SSSR 18 no.5:93-94 My '57. (MLRA 10:6)

1. Upravlyayushchiy Stavropol'skoy krayevoy kontoroy Prombanka. (Stavropol Territory--Construction industry--Finance)



BELKIN, Yu.; KALINKIN, A.; KOZHATKIN, G.; LOBKO, P.; KHYUKOV, V.,  
red.

[Device for the dynamometry of mounted machines; results  
of comparative tests] Pribory dlia dinamometrirovania  
navesnykh mashin; rezul'taty sravnitel'nykh ispytaniy.  
Moskva, Biuro tekhn. informatsii i reklamy, 1964. 103 p.  
(MIRA 18:9)

KALINKIN, A.V.

Standardization of the carrier frequency of ME-8 and Z-8  
apparatus using a reference frequency. Avtom., telem. i  
svyaz' 8 no.7:22-24 J1 '64. (MCRA 17:12)

1. Starshiy inzh. Petrozavodskoy distantsei signalizatsii i  
svyazi Oktyabr'skoy dorogi.

KALINKIN, A.V.

Two-stage RC-generator. Avtom., telem. i sviaz' 9 no.9:8-10  
S '65. (MIRA 18:9)

1. Starshiy inzh. Petrozavodskoy distantssii Oktyabr'skoy  
dorogi.

24(5)

AUTHOR: Kalinkin, B. N.

SOV/56-36-5-20/76

TITLE: The Resonance Scattering of  $\gamma$ -Quanta of Low Energy on Nuclei  
(Rezonansnoye rasseyaniye  $\gamma$ -kvantov maloy energii na yadrah)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 5, pp 1438-1442 (USSR)

ABSTRACT:  $\gamma$ -scattering at  $E_\gamma < 30$  Mev has two maxima; one of them is in the region of gigantic resonance and may be explained by the ordinary properties of nuclear matter, the second is in the pre-threshold region. Experimental data show that within this range  $\gamma$ -scattering depends essentially on nuclear structure. Whereas the cross section in the first maximum grows monotonously with A, the scattering cross section in the pre-threshold region has sharp oscillations in transition from nucleus to nucleus, especially in the case of nuclei with closed shells. Within this range the scattering has the character of very narrow resonances. The author of the present paper investigates the  $\gamma$ -scattering mechanism in this pre-threshold region on the assumption that scattering occurs on individual single-nucleon levels and may be treated as nuclear resonance fluorescence.

Card 1/3

The Resonance Scattering of  $\gamma$ -Quanta of  
Low Energy on Nuclei

SOV/56-36-5-20/76

An expression is written down for the scattering cross section  $\sigma(\gamma, \gamma)$  in dipole approximation and the quantities occurring therein are mathematically defined, as e.g. the width of the excited level by means of a Fermi gas model. The theoretical results are compared with experimental data (Ref 1). If the integral cross section averaged with respect to energy is

$\overline{\sigma(\gamma, \gamma)} = \frac{1}{D} \int \sigma(\gamma, \gamma) dE_\gamma$ , one obtains, e.g. by investigation of the proton transition  $1f_{7/2} \rightarrow 1g_{9/2}$  in  $Ni^{58}$

(the proton is in the excited state  $1g_{9/2}$  and is subjected to  $1P_1$ -scattering on a neutron which is in the ground state  $1f_{7/2}$ ) at  $E_\gamma = 7$  Mev :  $\overline{\sigma(\gamma, \gamma)} = 2.6$  mb, which agrees well with experimental results. Such comparisons are given for  $Cu^{63}$ ,  $Pb^{208}$ ,  $Bi^{209}$ ,  $Sn^{118}$  and  $J^{127}$ . Agreement is not everywhere equally good; thus, e.g. for  $Cu^{63}$ , an experimental value of  $\leq 1.8$  mb is obtained as against the value of 2.5 mb.

Card 2/3

The Resonance Scattering of  $\gamma$ -Quanta of  
Low Energy on Nuclei

SOV/56-36-5-20/76

The author thanks B. T. Geylikman for his valuable  
advice and his interest in this work. There are 9 references.

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva Akademii nauk SSSR  
(Physics Institute imeni P. N. Lebedev of the Academy of  
Sciences, USSR)

SUBMITTED: November 5, 1958

Card 3/3

KALINKIN, B. N., Cand Phys-Math Sci -- (diss) "Elastic scattering of  $\gamma$ -quanta of low energy by nuclei." / Dubna, Publishing Division, 1960. 8 pp; (Joint Inst of Nuclear Research, Laboratory of Nuclear Reactions); 160 copies; price not given; printed on duplicating apparatus; (KL, 17-60, 139)

83593

S/056/60/038/005/026/050  
B006/B070

24.6600

AUTHOR:

Kalinkin, B. N.

TITLE:

Coulomb Excitation of Nuclei by Heavy Ions, Accompanied  
by Emission of  $\gamma$ -Quanta /9

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 5, pp. 1541 - 1543

TEXT: Since it is now possible to accelerate very heavy ions (up to Fe-ion), it is of interest to make theoretical investigations of the Coulomb excitation of nuclei by heavy ions, followed by emission of relatively hard gamma quanta (6-7 Mev). The problem may be treated within the framework of the shell model, that is, in the model of single-nucleon excitations. For lower energies (weak excitations), where collective effects play an important role, treatment of the problem on the basis of this model leads to unsatisfactory results. The shell model gives good results in the range of energies considered here, where single-nucleon transitions play a major role. As the author has shown in an earlier paper (Ref. 2), this was also confirmed by the treatment of

Card 1/3



83593

Coulomb Excitation of Nuclei by Heavy Ions, 8/056/60/038/005/026/050  
Accompanied by Emission of  $\gamma$ -Quanta B006/B070

resonant scattering of  $\gamma$ -quanta by nuclei. As a concrete example, the author considers the case of the Coulomb excitation of the  $\text{Pb}^{208}$  nucleus by an  $\text{Ne}^{20}$  ion. Here, the Coulomb barrier is of the order of  $\sim 130$  Mev. The kinetic energy of the ion is assumed to be  $\sim 100 - 120$  Mev. If, for example, a neutron electric dipole transition ( $2f_{7/2} \rightarrow 2g_{9/2}$ ) results from the excitation, the nucleus is assumed to go to the ground state after emitting a 6-Mev gamma quantum. The energy loss of the ion is on excitation always a fraction of  $1/20$ . Under these conditions, the excitation process may be considered to be classical. The total excitation cross section calculated for the single-nucleon level  $2g_{9/2}$  of the  $\text{Pb}^{208}$  nucleus gives  $\sim 2 \cdot 10^{-2}$  mb. The cross section decreases practically exponentially when the energy of the ions decreases. For a bombardment of the  $\text{Pb}^{208}$  nucleus with a  $\sim 300$ -Mev  $\text{Fe}^{56}$  ion (Coulomb barrier 360 Mev), the cross section is 0.01 mb. If it is assumed that the reverse transition is also a pure electric dipole transition, the angular distribution of the gamma quanta may be calculated. For  $\text{Ne}^{20} + \text{Pb}^{208}$  one obtains

Card 2/3

KALINKIN, B.N.; OM SAN KHA

[Effect of deformations on elastic scattering of atomic nuclei]  
Vliianie deformatsii na protsess uprugogo rasseianiia atomnykh iader.  
Dubna, Ob"edinennyi in-t iadernykh issl., 1961. 11 p. (MIRA 14:11)  
(Scattering (Physics)) (Nuclei, Atomic)

KALINKIN, B.N.; PUSTYL'NIK, B.I.; SARANTSEVA, V.R., tekhn. red.

[Elastic scattering of heavy ions in quasi-classical approximation] Uprugoe rasseianie tiazhelykh ionov v kvaziklassicheskoy priblizhenii. Dubna, Ob"edinennyy in-t iadernykh issl., 1962.  
7 p. (MIRA 15:6)

(Ions—Scattering)

GRABOWSKI, J.; KALINKIN, B.N.

Effect of the nuclear potential form on the subbarrier transfer of a neutron. Aeta physica Pol 22 no.5:441-443 N '62.

1. Institute of Nuclear Physics, Krakow (for Grabowski).
2. Institute of Nuclear Research, Dubna, U.S.S.R. (for Kalinkin).

IVANOVA, S.P.; KALINKIN, B.N.

On elastic scattering of heavy ions. Acta physica Pol. 24  
no.1:121-124 J1'63.

Cross section for compound-nucleus formation in heavy-ion-  
induced reactions. Acta physica Pol. 24 no.1:125-129 J1'63.

1. Joint Institute for Nuclear Research, Laboratory of  
Theoretical Physics, Dubna, USSR.

KALINKIN, B.N.; PUSTYL'NIK, B.I.

Elastic scattering of heavy ions in the quasi-classical approximation.  
Acta physica Pol 23 no.3:375-381 Mr '63.

1. Ob'yedinennyy Institut yadernykh issledovaniy, Dubna, SSSR.

L 19714-65 EWT(m) DIAAP/SSD/SSD(c)/AFWL/ESD(t)

SESSION NAME: AP4045523

7/3045/61/024/001/0125 0.29

AUTHOR: Ivanova, S. P.; Kalinkin, B. H.

TITLE: Cross sections for compound-nucleus formation in heavy ion induced reactions

JOURNAL: Acta physica polonica, v. 24, no. 1, 1961, 115-129

TOPIC TAGS: nuclear physics, compound nucleus formation, cross section, heavy ion, nuclear reaction, nuclear interaction, elastic scattering

ABSTRACT: Compound-nucleus formation cross sections were calculated for a number of reactions. The information about the nuclear interaction parameters ( $r_0$  - the interaction radius and  $r_0^{eff}$  - the distance at which effective nucleon exchange occurs) used here was obtained from quasi-classical analysis of experiments on heavy ion elastic scattering. The parameter  $r_0$  turns out to be practically identical for different combinations of ions and target nuclei, with a value of approximately 1.28 f, which is an average value for the

rd1/ 3

17714-4

ACCESSION NR: AP4045523

at radii of light and heavy nuclei. Compound nucleus formation  
 curves were plotted as functions of the in-  
 cident energy for the reactions  $^{16}\text{O} + \text{Ar}^{40}$ ,  $^{16}\text{O} + \text{Ar}^{42}$ ,  
 $^{16}\text{O} + \text{Ar}^{44}$ , and  $^{16}\text{O} + \text{Ar}^{46}$ ; data obtained by Thomas (1968)  
 and De Sa (1968, 1969, 1970) were used for comparison. The  
 figure shows a like curve for the reactions  $^{16}\text{O} + \text{Ar}^{40}$  and  
 $^{16}\text{O} + \text{Ar}^{42}$ . The curves obtained here agree quite well with the  
 curves obtained by Thomas even though the semi-empirical  
 model for a smaller value of the integration limit  $r_0$  was used.



ASSOCIATION: Theoretical Physics Laboratory, Joint Institute of  
Nuclear Research, Dubna

Card 2/3

KALINKIN, B.N.; GRABOWSKI, J.

The angular distribution of the transfer reaction products.  
Acta physica Pol 24 no.3:435-443 S'63.

1. Joint Institute for Nuclear Research, Laboratory of Theoretical Physics, Dubna, U.S.S.R.

KALINKIN, B.N.; KOCHKINA, T.P.; PUSTYLNIK, B.I.

The quasi-classical analysis of the elastic scattering of complex nuclei. Acta physica Pol 24 no.3:427-434 S'63.

1. Joint Institute for Nuclear Research, Laboratory of Theoretical Physics, Laboratory of Nuclear Reactions, Computing Center, Dubna, U.S.S.R.

ACCESSION NR: AP4024335

P/0045/64/025/002/0265/0271

AUTHOR: Kalinkin, B. N.; Petkov, I. Zh.

TITLE: Complete nuclear fusion reaction

SOURCE: Acta physica polonica, v. 25, no. 2, 1964, 265-271

TOPIC TAGS: complete nuclear fusion, compound nucleus, potential, angular moment, heavy ion, nuclear fusion reaction

ABSTRACT: The formation cross-section of the compound nucleus  $\sigma_c(E)$  has to be known in order to analyze a number of reactions involving heavy ions. Thomas (Phys. Rev., 116, 703, 1959) computed this cross-section in dependence upon the energy for a number of cases, using the approximation of a rectangular hole, heavily absorbing ions. But this approach is very rough, since the interaction of the two nuclei is actually described by the potential, which diminishes exponentially at great distances. While more realistic models have since been proposed, there are now indications that the real value of  $\sigma_c(E)$  is considerably smaller than that computed for them (especially around 10 mev/nucleon), as evidenced by experiments in reactions between complex nuclei, when the heavy

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ACCESSION NR: AP4024335

target nucleus does not split. The paper computes the effect of large angular moments on the process of formation of the compound nucleus in reactions involving heavy ions, and concludes that the problem of the balance of the complete angular moment in such reactions "largely loses its acuteness" in view of the authors' results. Original has 9 equations, 1 diagram, 5 graphs and 1 table.

ASSOCIATION: Ob'yedinennyy Institut Yadernykh Issledovaniy, Laboratoriya teoreticheskoy fiziki Dubna, SSSR (Joint Institute for Nuclear Research, Laboratory of Theoretical Physics)

SUBMITTED: 26Jul63

DATE ACQ: 15Apr64

ENCL: 00

SUB CODE: NS

NO REF SOV: 002

OTHER: 006

Card 2/2

L 19498-65 EFF(c)/EPA(w)-2/EWT(1)/T/EWA(w)-2 Pr-L/Pab-10/ SSD/SSD(c)AFML/  
ESD(c)/LJP(c) WW

ACCESSION NR: APL045526

F/00045/63/024/001/0211/01

AUTHOR: Ivanova, S. P. : Kalinkin, E. N.

TITLE: On elastic scattering of heavy ions

SOURCE: Acta Physica polonica, v. 24, no. 1, 1963

TOPIC TAGS: nuclear physics, elastic scattering, heavy ions, Rutherford scattering

ABSTRACT: The elastic scattering of heavy ions on various target nuclei was  
treated by means of the semi-classical approximation.  
(Kalinkin, E. N.)

1969-65

ACCESSION NR: AP5045522

maximum observed at 30 to 32 degree is reproduced well. However, the curve shows rather large oscillations due to interference effects. Another curve is presented for large scattering angles, which indicates that the curve is strongly dependent on the scattering angle.

ASSOCIATION: Theoretical Physics Laboratory, Joint Institute for Nuclear Research, Dubna

SUBMITTED: 20 Jan 1969

NO RHP SOV 000

ENCL: 00

SUE CODE: 12P

OTHER: 002

Card 2/2

GAREYEV, F.A.; KALINKIN, B.N.

Inelastic scattering of complex nuclei. IAd. fiz. 2 no.4:635-  
642 0 '65.  
(MIRA 18:11)

1. Ob'yedinennyy institut yadernykh issledovaniy.



ACC NR: AP7012411

SOURCE CODE: UR/0367/67/005/001/0123/0128

AUTHOR: Gareyev, F. A. -- Gareev, F. A.; Grabovskiy, Ya. -- Grabowski, Ya.;  
Kalinkin, B. N.

ORG: Joint Institute for Nuclear Research (Ob'yedinennyy institut yadernykh  
issledovaniy)

TITLE: Diffraction effect in the angular distribution of transfer reaction  
products

SOURCE: Yadernaya fizika, v. 5, no. 1, 1967, 123-128

TOPIC TAGS: angular distribution, nuclear collision

SUB CODE: 20

ABSTRACT: The diffraction effect in the angular distribution of transfer  
reaction products has been treated. Its relation to the parameters charac-  
terizing collisions between nuclei is established. It is qualitatively ex-  
plained why an asymmetry exists in the half-widths of the stripping and pick-  
up reaction product energy spectrum. Orig. art. has: 3 figures and 10 formulas.  
[Based on authors' Eng. Abst.] [JPRS: 40,393]

Card 1/1

0932 1343

Kalinkin, B.I.

USSR/Engineering - Welding, Equip- Aug 51  
ment

"New Automatic Installation for Arc Weld-  
ing of Sheet Steel," B. I. Kalinkin, Engg

"Avtogen Delo"<sup>12</sup> No 8, pp 17-20

Describes installation of SA-2 GSPI (ADS-  
500) type for automatic welding under  
flux. Serial production began in 2d half  
of 1949. New unit has high productivity  
and is dependable and convenient in opera-  
tion. It consists of tractor-type auto-  
matic control cabinet, power supply block

200753

USSR/Engineering - Welding, Equip- Aug 51  
ment (Contd)

and 2 sections of guiding track, each 2 m  
long. Design permits, with slight read-  
justment, welding of thick plates using  
current up to 1,000 a.

200753

"A Vacuum-Tube Voltmeter Using A 6E5 Tube", Radio, No. 7, p 59, 1950.

SO: W-17985, 7 May 1951

KALINKIN, G. I.

112-3-60230

Translation from: Referativnyy Zhurnal, Elektrotehnika, 1957, Nr 3, p. 140 (USSR)

AUTHOR: Kalinkin, G. I.

TITLE: Certain Problems in the Investigation of D-C Micromachines for Airplane Mechanisms (Nekotoryye voprosy issledovaniya mikromashin postoyannogo toka dlya samoletnykh mekhanizmov)

ABSTRACT: Bibliographic entry on the author's dissertation for the Degree of Candidate of Technical Sciences, presented to the Kazan' Aviation Institute (Kazansk. aviats. in-t), Kazan', 1956.

ASSOCIATION: Kazan' Aviation Institute (Kazansk. aviats. in-t)

Card 1/1

*KALINKIN G.I.*

STOLOV, L.I., kand.tekhn.nauk, dots.; KALINKIN, G.I., kand.tekhn.nauk.

Testing micromachines by means of an auxiliary motor. Elektrichestvo  
no.1:68-70 Ja '58. (MIRA 11:2)

1. Kazanskiy aviatsionnyy institut.  
(Electric motors--Testing)

*KALINKIN, GENNADIY IVANOVICH*

SOV/144-58-10-8/17

AUTHOR: Kalinkin, G.I., Candidate of Technical Sciences, Docent

TITLE: An Investigation of the Armature Reaction and Mechanical Characteristics of a Direct Current Micro-Motor by the Method of Two Speed Characteristics (Issledovaniye reaktsii yakorya i mekhanicheskoy kharakteristiki mikrosvigateley postoyannogo toka metodom dvukh skorostnykh kharakteristik)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 10, pp 87-93 (USSR)

ABSTRACT: A good deal of work has been done on the armature reaction of d.c. machines, particularly on its experimental determination. However, all of the experimental methods have been developed primarily for large or medium sized machines and they may give considerable errors when applied to small machines. Sometimes they necessitate dismantling a small machine to install measuring devices inside it. Moreover, existing methods of determining the armature reaction do not ensure sufficiently simple construction of the mechanical characteristics of the motor. This article

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SOV/144-58-10-8/17

An Investigation of the Armature Reaction and Mechanical Characteristics of a Direct Current Micro-Motor by the Method of Two Speed Characteristics

describes an experimental method of determining the resultant armature reaction and the mechanical characteristic of a d.c. micro-motor from two speed characteristics taken at two voltages. The armature reaction is evaluated from the ratio of the resultant flux of the machine on load to the resultant no-load flux, that is set up only by the field winding. The equation of the speed characteristics, that is the speed as a function of armature current, is written for two voltages assuming the field current to be the same in both cases and then by subtraction for the same armature current expression (3) is obtained. Using this expression, the ratio of the flux on load to the flux at no-load is obtained by determining two speed characteristics for different voltages and calculating the differences of voltage and speed as illustrated diagrammatically in Fig 1. Methods of determining one of the coefficients in the equation according to the method of connection of the field winding is then

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SOV/144-58-10-8/17

An Investigation of the Armature Reaction and Mechanical Characteristics of a Direct Current Micro-Motor by the Method of Two Speed Characteristics

explained. If commutation is linear Eq (3) gives the armature reaction at any speed. However, if commutation is not linear and there is a commutation armature reaction, the value of armature reaction determined by Eq (3) will be characteristic of some speed intermediate between those used in the experiment. Simple methods of overcoming this difficulty are explained. Eq (6) is then derived for the electro-magnetic torque of the machine and then the method of constructing the so-called "mechanical characteristic" from the two-speed characteristics is explained with reference to Fig 2. This characteristic is the speed as a function of the electromagnetic torque. The method can also be applied when the motor is supplied from a system of small capacity where there is voltage drop in the circuit as the load changes. In determining the armature reaction and the torque, the resistance of the armature circuit is not considered because it is assumed to be the same at

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SOV/144-58-10-8/17

An Investigation of the Armature Reaction and Mechanical Characteristics of a Direct Current Micro-Motor by the Method of Two-Speed Characteristics

the corresponding points on both speed characteristics. This is considered a little more closely and shown to be valid both for the brush contact resistance and for the armature winding resistance. By way of example, the method is applied to a series motor type MU-30. The two speed characteristics determined by an oscillograph method are given in Fig 3, which also gives the graphical construction of the mechanical characteristic. The difference between this characteristic and that determined directly by measuring the torque on the shaft and the no-load torque is only about 3%. The results of calculation of armature reaction are given in Table 1. Velocity characteristics obtained on a shunt motor type MP-8 of 8 W output are shown in Fig 4, together with the mechanical characteristic constructed from them. The results of calculation of armature reaction are given in Table 2. In both cases the variations in armature reaction with speed and armature current are discussed. This method of determining armature reaction and

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SOV/144-58-10-8/17

An Investigation of the Armature Reaction and Mechanical Characteristics of a Direct Current Micro-Motor by the Method of Two Speed Characteristics

mechanical characteristics is recommended for its convenience and accuracy. There are 4 figures, 2 tables and 9 Soviet references.

ASSOCIATION: Kafedra Osnov Elektrotekhniki i Elektricheskikh Mashin Kazanskogo Aviatsionnogo Instituta (Chair of Electrical Engineering Fundamentals and Electrical Machines, Kazan' Aviation Institute)

SUBMITTED: 18th November 1958

Card 5/5

S/144/60/000/01/011/019  
E194/E155

AUTHOR: Kalinkin, G.I., Candidate of Technical Sciences, Docent

TITLE: An Experimental Determination of Commutation Armature  
Reaction in Fractional Horse-power d.c. Machines,<sup>9</sup>

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,  
Elektromekhanika, 1960, Nr 1, pp 93-98 (USSR)

ABSTRACT: A good deal of attention has been paid to methods of determining experimentally the commutating armature reaction. However, the methods are specially applicable to medium-sized and large machines and are difficult to apply to f.h.p. machines. The present article describes a method of determining the commutating armature reaction from test results obtained on f.h.p. machines under motor and generator conditions. It is based on determining the resultant armature reaction by the method of two speed-characteristics and does not necessitate measurement of the armature resistance. The machine is run first as a motor, then as a generator, with the armature and field currents the same in both cases, and the speed the same but reversed in direction. All the m.m.f's of the motor condition, except the

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An Experimental Determination of Commutation Armature Reaction in Fractional Horse-power d.c. Machines

commutating m.m.f, are then equal in magnitude and sign with those of the generator condition, whilst the m.m.f. of commutating armature reaction is equal in magnitude but reversed in sign. Let the method of two speed-characteristics be used to determine the resultant armature reaction for the motor condition for a given current and speed, as shown in Fig 1. The figure also shows two speed-characteristics with the machine working as a generator under conditions of dynamic retardation, with the armature connected to two different values of resistance. The speed of the motor changes during the tests and is observed oscillographically. The resistance values must be so chosen that the mean speed is appropriate to the armature current in question. The resistance value may be determined from Expression (1), but may need some adjustment to obtain the correct mean speed. The method of dynamic retardation can be used to determine the commutating armature reaction up to some critical value of current, corresponding to short-circuit

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of the armature. The dynamic retardation method is not applicable to currents higher than this critical value, nor to speeds lower than that corresponding to it. For these latter conditions the commutating armature reaction may be determined by a method of retardation with cross-connection. The armature is connected to the supply and the motor is driven by an auxiliary motor in a direction counter to the normal direction of rotation. The machine under test of course acts as a generator. Eq (2) is derived for the voltage to be applied to the motor terminals. In this equation there is a critical value of the current similar to that obtained previously but approached from the other side. Thus, by using both conditions the commutator armature reaction may be determined for all values of current and speed, and all values of armature circuit resistance. The two speed-characteristic method can also be used to determine the commutating armature reaction under the quadrature brushes of an amplidyne, considering the amplidyne as an ordinary

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An Experimental Determination of Commutation Armature Reaction in Fractional Horse-power d.c. Machines

d.c. machine whose field winding is the control winding of the amplidyne. By way of example, the commutating armature reaction is determined for a series of f.h.p. motor type MU-302 the characteristics of which have been given by the present author in this journal, Nr 10 of 1958. The test results are given, and the determination of the m.m.f. of commutating armature reaction from the no-load characteristics is described with reference to the diagram of Fig 2. It is shown that in this particular kind of motor the effect of commutating armature reaction is very marked. Fig 3 gives experimental curves of this kind, from which the commutating armature reaction may be determined. Commutating armature reaction curves for this machine are plotted in Fig 4, and it will be seen that the effect of commutating armature reaction is very marked under the quadrature brushes. It is concluded that the procedure recommended for experimental determination of commutating armature reaction in f.h.p. d.c. machines is simple and

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An Experimental Determination of Commutation Armature Reaction in  
Fractional Horse-power d.c. Machines

sufficiently accurate.

There are 4 figures, 1 table and 7 Soviet references.

ASSOCIATION: Kafedra osnov elektrotekhniki i elektricheskikh  
mashin, Kazanskiy aviatsionnyy institut  
(Chair of Fundamentals of Electrical Engineering and  
Electrical Machinery, Kazan Aviation Institute)

Card 5/5

SUBMITTED: September 16, 1959



S/196/62/000/005/010/012  
E194/E154

AUTHOR: Kalinkin, G.I.

TITLE: Special features in the use and selection of disc diameter of electro-magnetic micro-brakes

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no.5, 1962, 16, abstract 5 192. (Tr. Kazansk. aviats. in-ta, no.59, 1960, 39-45)

TEXT: A low output electro-magnetic brake can be used to measure the torque and speed of electric motors. The braking torque of the brake disc is  $M_m = K_M \cdot \delta \cdot \gamma \cdot \Phi^2 \cdot n$ , where  $K_M$  is the brake constant;  $\gamma$  disc material conductivity;  $\delta$  disc thickness;  $\Phi$  - magnetic flux;  $n$  - speed of rotation. Expressing the flux  $\Phi$  in terms of the magnetising force of the field coil  $I_b W$  and the reluctance of the magnetic circuit of the brake  $R_M$ , we obtain

$$n = K_n \varrho \frac{M_m}{I_b^2}, \quad \text{where} \quad K_n = \frac{R_M^2}{K_M \delta W^2} \quad \text{and} \quad \varrho = \frac{1}{\gamma}.$$

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Special features in the use and ... S/196/62/000/005/010/012  
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The speed of rotation is conveniently determined from a calibration curve  $n = f(M_m; I_b)$ . To reduce the error in determination of  $n$  and also to increase the value of  $M_m$  the brake disc should preferably be made of alloys, used in induction tachometers, of high specific resistance and with low temperature coefficient of resistance. In selecting the disc diameter  $d$ , air resistance must be allowed for. The frictional torque  $M_f$  of the disc in air may be determined from the formula:

$$M_f = C_M \cdot \rho_m \cdot \omega_0 \cdot r^5$$

where:  $C_M$  - a dimensionless coefficient;  $\rho_m$  - the mass density of air;  $\omega_0$  - angular speed of rotation of the disc;  $r$  - disc radius. The figure shows the relationship  $M_f = f(d)$  at constant speed at the air temperature of +15 °C and pressure of 760 mm Hg. The air resistance of the disc is practically independent of ambient temperature. Knife edge supports should be used in micro-brakes. To reduce leakage fluxes auxiliary parts should be made of non-magnetic materials. The general appearance and characteristics of 1 W micro-brakes are given. Card 2/3 5 literature references.

ALESKOVSKIY, V.B.; SEMIKOZOV, G.S.; KALINKIN, I.P.

Photometric determination of microquantities of copper by  
lead diethyldithiocarbamate. Trudy LTI no.61:144-149 '60.

(MIRA 15:5)

(Copper—Analysis) (Electrolytes) (Carbamic acid)

24.7000

1043, 1160, 1143

20081

S/181/61/003/009/013/039  
B102/B104

AUTHORS: Kalinkin, I. P., Sergeyeva, L. A., Aleskovskiy, V. B., and Strakhov, L. P.

TITLE: Production of cadmium selenide single crystals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2640-2645

TEXT: A number of methods are known for the production of semiconductor single-crystal films, however, the properties of these films mainly depend on the type of the backing and the production conditions. To study these dependences the authors produced CdSe films on alkali halide backings under very rigorous conditions. The initial material was CdSe (impurities  $6 \cdot 10^{-4}\%$  Fe,  $2 \cdot 10^{-4}\%$  Cu,  $2 \cdot 10^{-4}\%$  Ni,  $5 \cdot 10^{-4}\%$  Co,  $5 \cdot 10^{-5}\%$  Mn) supplied by the works "Krasnyy khimik" (Red Chemist) and was heated in a vacuum. The (111) faces of artificial NaCl, KCl, and KBr single crystals, treated by different methods and examined under a metallographic microscope, type MIM-7 (MIM-7), and a BC-242 (BS-242) electron microscope prior to the sputtering of CdSe, were used as backings. It was found that the surface

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Production of cadmium selenide ...

properties of the backing depend largely on the treatment methods (polishing, heating). In the production of the films sublimation temperature and sublimation rate were more important than the surface property of the backing. Also a previous annealing in a muffle furnace at 350 or 500°C for 1-3 hr proved important. In the experiments CdSe was sputtered on well and poorly polished, annealed and non-annealed backings. The experiments showed that: (1) independently of the lattice constants of the backing, hexagonal polycrystalline CdSe films with  $a = 7.02 \text{ \AA}$  and  $c = 4.3 \text{ \AA}$  were formed. Already a 15-min annealing at 350°C was sufficient to achieve partial orientation of the films. (2) At a backing temperature of 150-200°C during sputtering, the orienting effect of the backing on the film was much stronger, especially with previous annealing. 3) At 250°C the films sputtered onto annealed and non-annealed backings differed considerably. The major part of the crystals formed a mosaic single crystal with the face (0001) parallel to (111) of the backing. 4) At a backing temperature of 300-350°C during the sublimation a hexagonal monocrystalline film was formed independently of the previous annealing. 5) Purity and structure of the backing surface did not essentially influence surface and structure of the film. The single crystal films obtained under optimum

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